REMARKS

Applicants respectfully request reconsideration of the present application in view of this response.

Claims 15, 19 and 23 were rejected under 35 U.S.C. §112, first paragraph, as to the written description requirement. However, the torque characteristic map is described in the Specification, for example, at page 6, lines 12-28, and at page 7, line 37 to page 8, line 13.

Also, as to the written description requirement, the Examiner has the initial burden of presenting "evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims." (See M.P.E.P. § 2163.04 (citing In re Wertheim 541 F.2d 257, 262, 265, 191 U.S.P.Q. 90, 96, 98 (C.C.P.A. 1976))) (emphasis added). It is therefore respectfully requested that the rejections be withdrawn in view of the above explanations, and since the initial burden has not been addressed in the Office Action.

Claims 8 to 25 were rejected under 35 U.S.C. § 103(a) as unpatentable over Machida et al., U.S. Patent No. 5,996,547, in view of Machida, U.S. Patent No. 5,652,380.

Claims 8 and 14 include the feature that a first variable, which characterizes an injection quantity, and a second variable, which characterizes an angular position at which the injection quantity is metered, are used in determining a third variable which characterizes a torque supplied by the engine.

The Machida '547 reference relates to a control apparatus for a combustion engine in which a target engine torque is calculated and compared to an actual engine torque. A deviation quantity is calculated from the difference between the values, and the lean combustion is inhibited when the deviation quantity is equal to or larger than a predetermined value.

The Office Action asserts that a first variable which characterizes an injection quantity is purportedly disclosed in Fig. 2, numeral 6 and in col. 6, lines 17 to 20. However, Fig. 2 is merely a "schematic view of an internal combustion engine," and reference numeral 6 of this figure is merely an electromagnetic injection valve. There are no variables disclosed, or even suggested, by Fig. 2. As for the text, at column 6, lines 17 to 20, Machida '547 merely states that a piezoelectric "combustion pressure sensor has been provided" at the threading mount portion of either of electromagnetic injection valve 6 or ignition plug 7." Furthermore, as understood, the Machida '547 reference states that the target engine torque is calculated based on an engine rotation speed and an open degree of accelerator, and the actual engine torque is

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calculated based on a rotational angular acceleration during a combustion or compression stroke. Machida '547, col. 2, lines 6-14. Therefore, Machida '547 does not disclose a first variable which characterizes an *injection quantity* that is used to determine a variable which characterizes a torque supplied by an engine, as provided for in the context of claims 8 and 14.

The Office Action asserts that Machida '380 discloses a first variable which characterizes an injection quantity, at column 6, lines 39 to 45. Claims 8 and 14 provide the feature of determining a third variable which characterizes a torque supplied by the engine on the basis of a first variable which characterizes an injection quantity and a second variable which characterizes an angular position at which the injection quantity is metered. Column 6, lines 39 to 45 of Machida '380 merely states that the CPU of a microcomputer computes a basic fuel injection quantity Tp and a final fuel injection quantity Ti. This has no bearing whatsoever on the patentability of claims 8 or 14, which provide for determining a third variable which characterizes a torque supplied by the engine on the basis of a first variable which characterizes an injection quantity, as well as other information.

Accordingly, neither Machida '547 nor Machida '380 discloses or even suggests, whether taken alone or combined, the feature of determining a third variable which characterizes a torque supplied by the engine on the basis of a first variable which characterizes an injection quantity, as provided for in the context of claim 8 and 14.

Claims 9 to 13 and 15 to 25 depend from claim 8, and are therefore allowable for at least the same reasons as claim 8.

Further regarding claims 9 and 24, col. 3, lines 17 to 20 of Machida '547, merely states that to inject fuel, the electromagnetic injection valve 6 is opened by a solenoid energized by an injection pulse signal, so that it does not disclose (or even suggest) the feature which provides that the first variable corresponds to an actuation duration of an output stage of one of a solenoid valve or a piezoactuator, as in claims 9 and 24.

Further regarding claims 10 and 25, Fig. 2 is a schematic view of an internal combustion engine and does not disclose (or even suggest) any variables at all. Furthermore, col. 3, lines 49-59 of Machida '547 merely states that crank angle sensors 21 and 22 detect rotation of a crankshaft and a camshaft of the internal combustion engine 1, respectively, so that it does not disclose (or even suggest) the feature which provides that the angular position is that of a crankshaft and that the second variable corresponds to the angular position of the crankshaft at which the injection occurs, as in claims 10 and 25.

Further regarding claims 11, 16 and 20, <u>Machida</u> '547 merely states that the target engine torque calculating device calculated the target engine torque based on engine rotation speed and acceleration. (col. 2, line 8), so that it does not disclose (or even suggest) that the fourth variable corresponds to a position of an operating element, as in claims 11, 16 and 20.

Further regarding claims 12, 17 and 21, Figure 4 of <u>Machida</u> '547 merely indicates a routine for judging lean combustion inhibition, so that it does not disclose (or even suggest) the feature of detecting a fault when the third variable and the fifth variable differ by more than a threshold value in claims 12, 17 and 21.

Further regarding claims 13, 18 and 22 col. 6, lines 48-56 of <u>Machida</u> '547 merely state that a deviation quantity is calculated from the difference between a target engine torque and an actual engine torque, so that it does not disclose (or even suggest) the feature which provides that the fault monitoring takes place only in certain operating states, as recited in claims 13, 18 and 22.

Accordingly, claims 8 to 25 are allowable.

CONCLUSION

In view of the foregoing, it is believed that the rejections of claims 8 to 25 have been obviated, and that claims 8 to 25 are allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

Respectfully submitted,
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